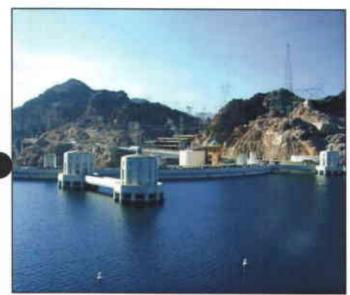
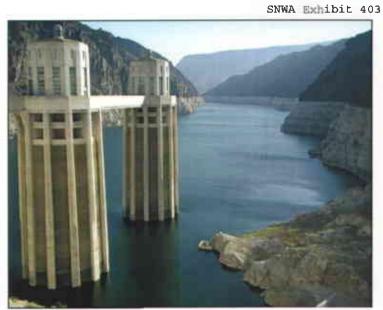




Presentation for Holmes, Brothers and Entsminger Testimony September 26, 2011







Colorado River Annual Inflows and Lake Mead Water Elevations

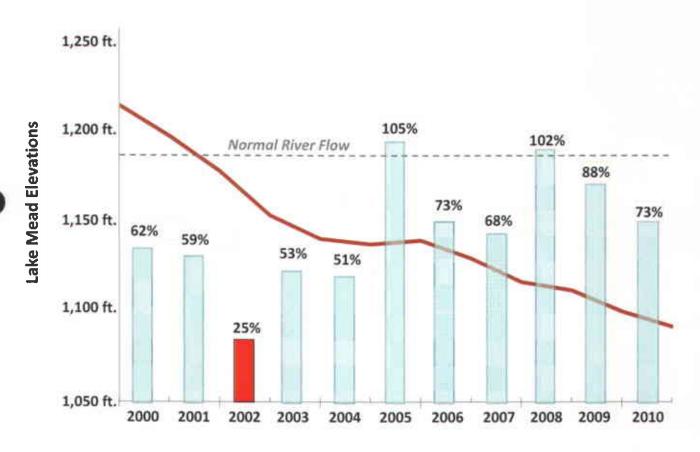


Table 1-1 Groundwater Rights and Applications
Planned to be Conveyed through the GWD Project

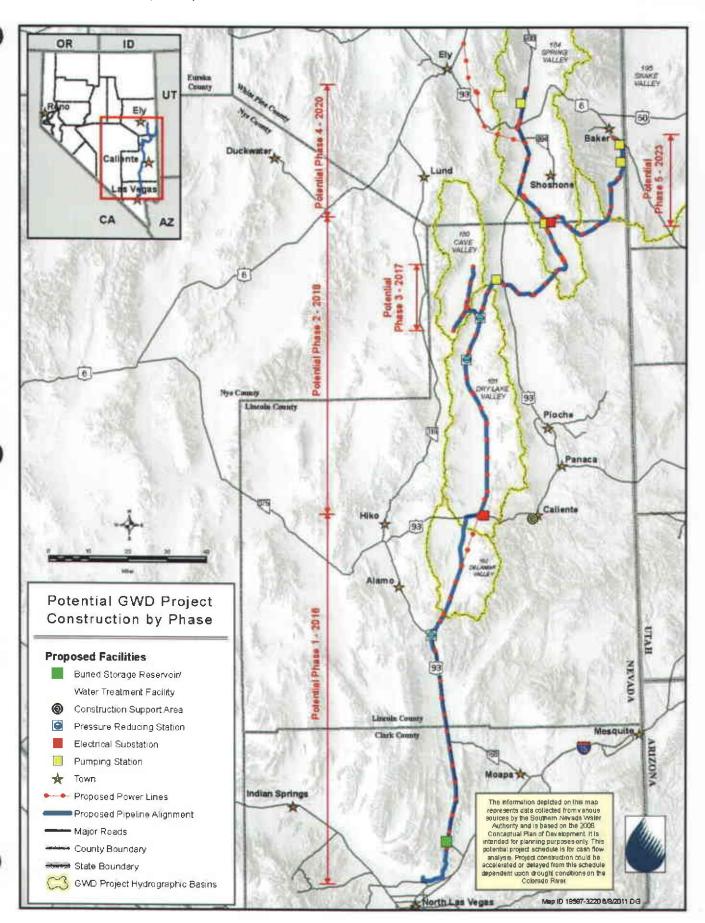
Hydrographic Basin	Existing Groundwater Rights (afy)	Existing Agricultural Groundwater Rights (afy)	Groundwater Applications (afy)			
SNWA						
Spring Valley	60,000	8,000				
Snake Valley			50,679			
Cave Valley	4,678					
Dry Lake Valley ^a	10,084					
Delamar Valley "	993					
Subtotal	75,755	8,000	50,679			
Lincoln County	•					
Dry Lake Valley ^a	1,500		1,009 b			
Delamar Valley ^a	1,500					
Lake Valley		11,300				
to be determined		approx. 20	0,700			
Subtotal	3,000	approx. 33,000				
TOTAL			approx. 170,4			

afy: acre-feet per year

Table 2 -GWD Project Cash Flow (\$ Million)

_	Name (whee					Make Teather																											
-		Stee Phartes			Water Paperson Character C					broy-sera there, per				THE ROLL SHOW SHOW SHOW SHOW SHOW SHOW SHOW SHOW						Protection.			Open		Secret D								
un.	1	100	-	- Add		Mileston	ring																								- 1	-	100
			den!			Rest			Mappin			Huser			Beach															- 8		-961	
	-	W 1	-ped	- OK	- Proper	100	01/8/3	inter.	I -me	100	7900	-046	100	wege.	-	. DK.	-	-000	- (9)	THE	-00	10000	THE	1000	- 104	thus.	1000	390	-	riset*	100		
											-				1															- 1			4
																														- 1	-		4
9	_	100																											2018	-		Ser. II	Æ
1				三年 万													COTTO												=#544	STITLE.	-	30.002	4
				28619		H		7.1									1 to 10 to	1987	176.70										a grown	Present.	-	201944	4
9	34	-	10,10,100	24617	16.00	10		Chyp			CONTRACT						100.00	10 Pet 10	110.76										MINERY	CHARLE	223	CHROMAN	w
9				300011		H. W. Barry	3604000	504,00	THE RES	xxeest	1,781.00						1000	0.00	148.50										and make	10.75 (0)	220.00	20,000,00	40
		= 17	NO PERSONAL	SW15	15.700-0	or the desire			1000	446.67	1,1800	500	and the					1000	110.70										10 and 107	Abdicate.	- H-721.04	лати	4
							300000				1.18:50	SHIP	TOWN					116.7	249.50										139/76	SECTION	2,700	MICHEL M	44
4						100,044,010	307549					SHOW.	ESTATI					1106.7	149/30											Service	matical	SHEET	4
4												No. of Con-	EDW	190,0				0.16	149.5	(34mp									12000	90.000.01	220.00	make of	N.
= 0														146.0		-				16:5	1450	120-41							1,00000	SAME	130-00	mirate	*
3														-148-01	E-100 (H-17)	3100.04				14000	7100	139.46							1,0000	10 10 00	1000000	100,000,700	4
=															2010017	C 20-04				24110	4100	1200.66							149/20	19 79 419	44000	100 miles	H.
•															10:014 TH	C.20.04				14000	***	139.45							1 division	10-010-016	1110	HIS RAL TH	Æ
0																					*100	100.45							-	118086	5.00+68	(E-144.79)	w
-																					210.0	239.45							- 1	75-017-044	536-66	200.70	HĒ.
																					100	136.46							-	75.000.000	230-65	200.70	ME.
																					4400	1044							- 1	1100	2,9444	2,000.70	wil.
10	-														_														- 6		- A		H
															_														- 4				A.
а															_														-		-		4
1															-														-		-		A.
٠.																-													-				A.
															1 =														- 04				Al.
_																-																	4
-															_														-	-			4
-																							CERTAIN						E-800			100.00	Al.
															_	_							11000	Name	Debitati				- Company	40.000	7 046410	200.00	ut:
-																							Chican	To the last	China				1.70(9)	10.00.00	7 Section	16,000,00	w
-																-							11000	11/10/20	3300				- 176mm	T TURN	248.016	Indiana.	4
OFF.																-							11000	1000	3660				1/0/00	10.000.000	2000	-0.60,10	4
191																_							Aliana	1000					-	100000	2000	-0.0	41
																									1300	6-800-040			10000	10.00000	2000	*****	
100																_								11000	100(41	14600	44834	100.04	149.00	627.00	- 646-4	-	11
															-	_								1100			++		100.00		and the same of		
-																											1180		10000	10.00	- 04000	4,000	
_																		_									1000	1,000,000	- 6	1640000	- 0404	almost a	ų.
rine																												Larrace	- 4	- leasen		-	
-															_							-					1464	AMPRICA	- 1	10000	16.00	a book	4
-																_						-						Tarrier.		(beam)	Charles		-
															-									1					- 4				4
146															_	-						_											4
															-	-						1=								-			4
104															_	_								-									4
=:															_	-						-											1
-															1	-						_							-				4
-		=1													-										=		=						4
100	81.0	06446.4	114,000,147	100,010,000	14.000	· HEREN	1010030	AAAINE	40.001.37	Assess	A.MI-101	211.040.01	100	-	170.000.0	LHE	15.06146	100.001.665	No. of	20 W/ AND	Table 1 and 1 and	CHARLES .	THE REAL PROPERTY.	OC HEAT	TOTAL SECTION	10.000.75	16.45.74	SHA	THE REAL PROPERTY.	100,000	460,070,000	THE PERSON	di.
	4			-00.05			98.10.00		1 -4 -40-00	Little			17700-01		1.000	(3-60-6)					100000000000000000000000000000000000000	19 14.10			1235.11		-	16.18			116 75.75		

Figure 1 - GWD Project by Phase



Colorado River Annual Inflows and Lake Mead Water Elevations

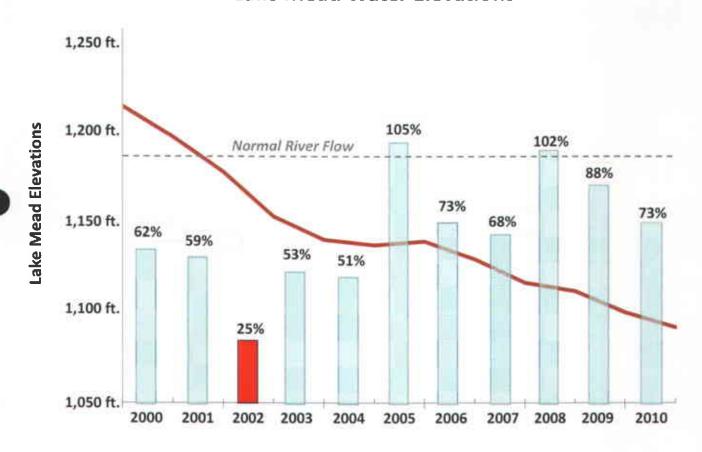


FIGURE 28 - Projected Water Demands and Future Resources (under normal Colorado River conditions)

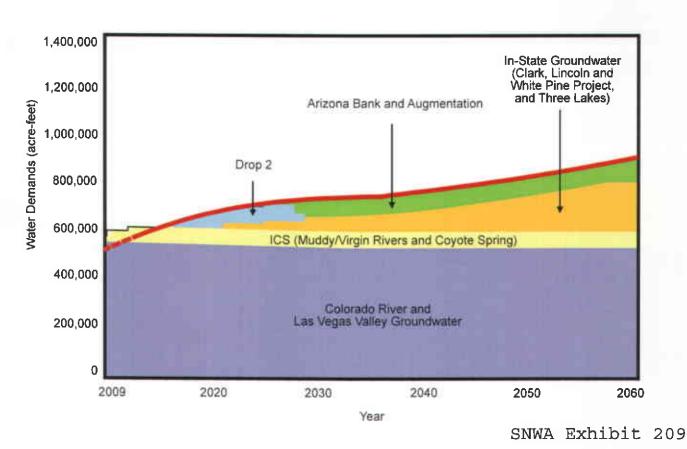


FIGURE 27 - Summary of Projected Water Demands and Water Resources

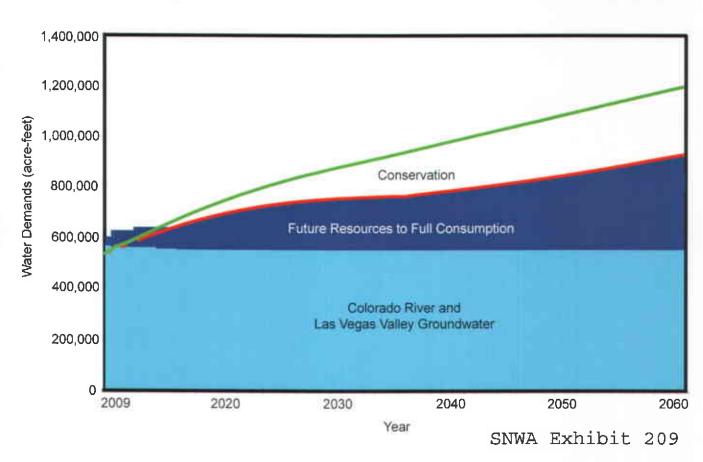


FIGURE 24 - Summary of SNWA Water Demands and Conservation

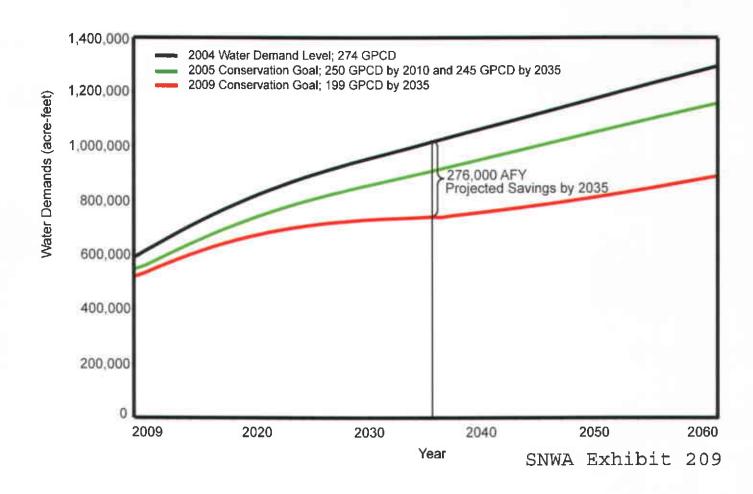
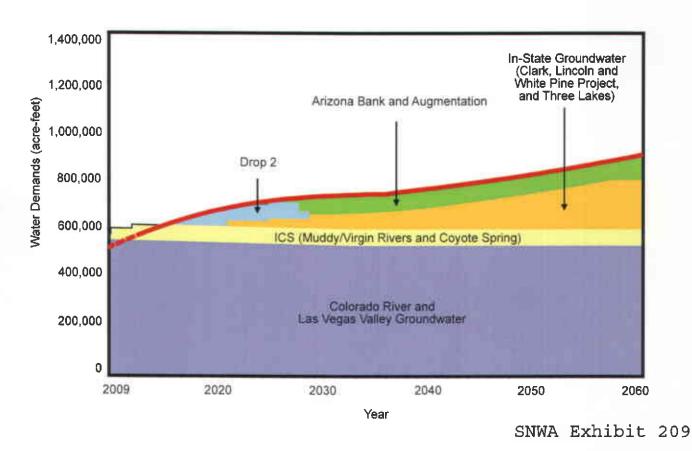


FIGURE 28 - Projected Water Demands and Future Resources (under normal Colorado River conditions)



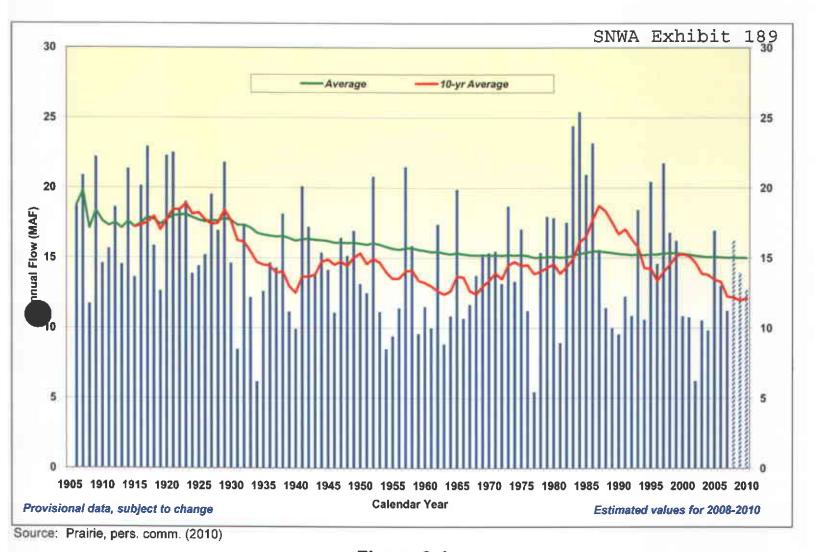
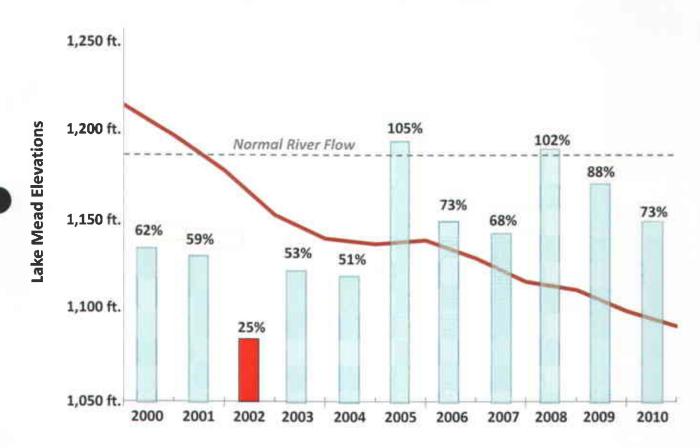
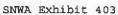
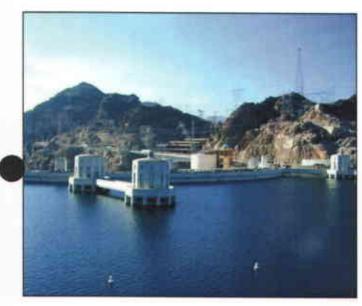


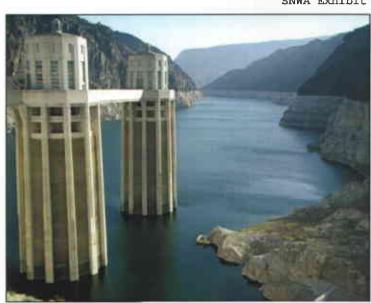
Figure 8-1
Colorado River at Lees Ferry, Arizona-Natural Flow

Colorado River Annual Inflows and Lake Mead Water Elevations



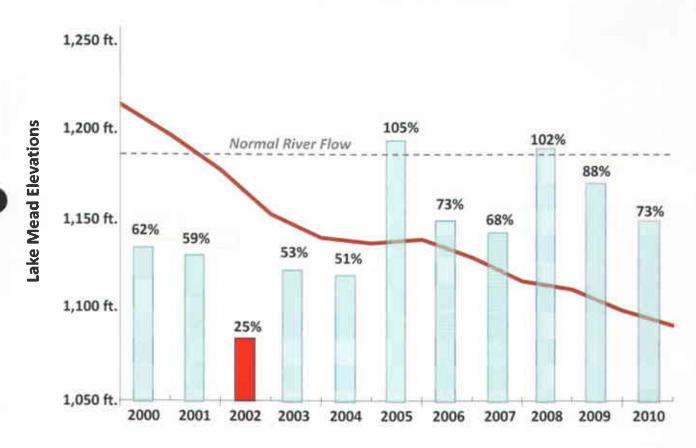


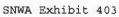


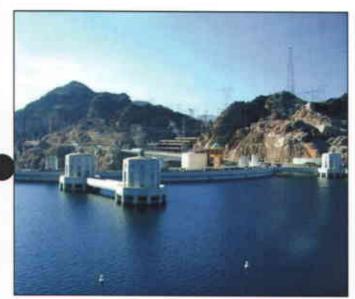


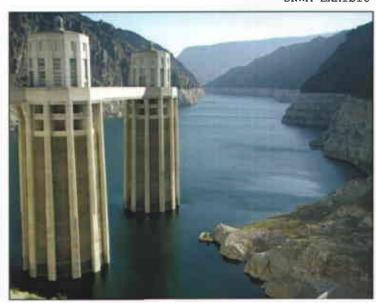
2000 2011

Colorado River Annual Inflows and Lake Mead Water Elevations









2000 2011

1011114

from its apportioned share of the Colorado River, it is clear that Nevada will be unable to rely solely on the Colorado River during prolonged droughts or to meet its future demands. However, Colorado also believes that the Lower Basin, as a whole, has developed more "Colorado River System" water than it is legally entitled to pursuant to the Colorado River Compact and we therefore expressed significant concerns about the development of any additional surface water supplies from the Colorado River or its tributaries in the Lower Basin. Colorado did support the development of non-tributary groundwater supplies in Nevada and we believe the development of non-tributary groundwater is critical to meeting the long-term water supplies needs for Nevada. Towards that end we urged Nevada to proceed with construction of the infrastructure nocessary to develop and deliver those groundwater supplies. We continue to support the development of Nevada's non-urbutary groundwater resources, but remain very concerned about the development of any additional surface water supplies at this time.

In addition to considering the "no action" alternative, and given this background, the EIS team for this project needs to consider the following:

- 1. Consideration should be given to the viability of the project if it were to be developed solely on non-mbutary groundwater resources available to Nevada.
- 2. The HIS team should consider the potential for augmentation of Colorado Biver System water through desalinization, weather modification and other means that could add wet water to the Colorado River Basin. Such projects are needed in order for Colorado to support the proposed project. Absent such augmentation or reductions in the overall use by the Lower Basin, Colorado has significant concerns with the development of the proposed project. The project will diminish flows into Lake Mead by over 100,000 acre-feet per year. This is Colorado River System water and is subject to the terms of the Colorado River Compact of 1922. Diminished inflow to Lake Mead is detrimental to Upper Basin interests because it increases the risk that Upper Basin uses will be curtailed. It may also adversely impact power generation.
- 3. The HIS should consider the effects of reduced inflow to Lake Mend and the Colorado River on the salinity of the Colorado River. Would these reductions adversely impact the shifting of the U.S. to comply with Minute 242 to the Mexican Treaty?

Colorado would note that we are in substantial agreement with the comments submitted on behalf of Wyoming. Again, thanks very much for the opportunity to comment on this important RIS.

Sincerely,

Rod Kuberioh Director

RK/drs

cc: Southern Nevada Water Authority Colorado Congressional Delegation

Colorado Water Conservation Board Members

Sevan Colorado River Basin State Representatives

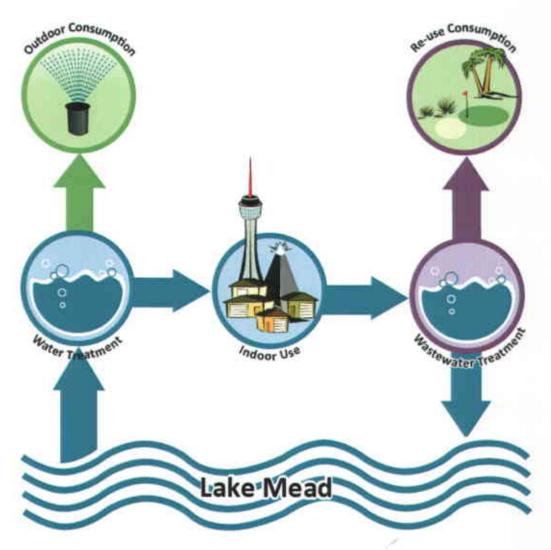
Road Prosection • Water Project Flamming and Finance • Streets and Lake Projection
Water Supply Projection • Conservation Planning

Figure 30 – Nevada Share of Shortage

Lake Mead Water Level	Nevada Shortage	Arizona Shortage			
1,075 - 1,050 ft.	13,000 afy	320,000 afy			
1,050 - 1,025 ft.	17,000 afy	400,000 afy			
Below 1,025 ft.	20,000 afy	480,000 afy			
	Reconsultation				

Figure 34 – Severe Shortage Plan

Lake Mead Elevation	Goal	Action
1,075 to 1,025 ft.	Preserve lead time for new facility development.	Construct Clark, Lincoln and White Pine Counties Groundwater Development Project Examine demand-management needs over and above existing conservation goals/annual targets.
1,025 to 1,000 ft.	Preserve Lake Mead elevation of 1,000 ft.	Reconsult with the Secretary of the Interior and Basin States on additional Colorado River shortage management strategies. Implement additional demand-management measures through mandatory policies to offset further Colorado River Basin supply shortages. Examine potential for temporary infrastructure to extend the operational capabilities of SNWA's intakes in Lake Mead.
Below 1,000 ft.	Preserve water supply for health and safety uses.	Maximize use of available groundwater supplies (Southern Nevada Groundwater Bank and in-state resources). Significantly limit non-essential uses.



SCENARIOS

- Baseline
- Increased Indoor Conservation

 Assuming a reduction of 50,000 AF indoors
- Increased Outdoor Conservation

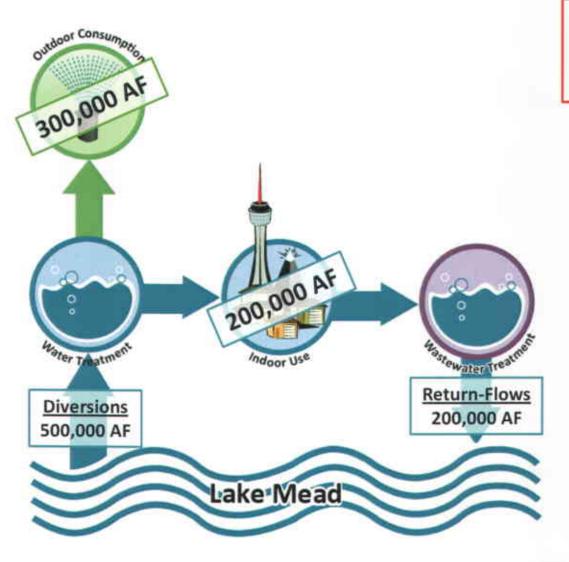
 Assuming a reduction of 75,000 AF outdoors
- Increased Indoor & Outdoor Conservation

 Assuming a reduction of 50,000 AF indoors and 75,000 AF
 outdoors
- Increased Reuse

 Assuming an increase of 50,000 AF in reuse

TOTAL NET USE:

300,000 acre-feet



SCENARIOS

- Baseline
- Increased Indoor Conservation

Assuming a reduction of 50,000 AF indoors

- Increased Outdoor Conservation

 Assuming a reduction of 75,000 AF outdoors
- Increased Indoor & Outdoor Conservation

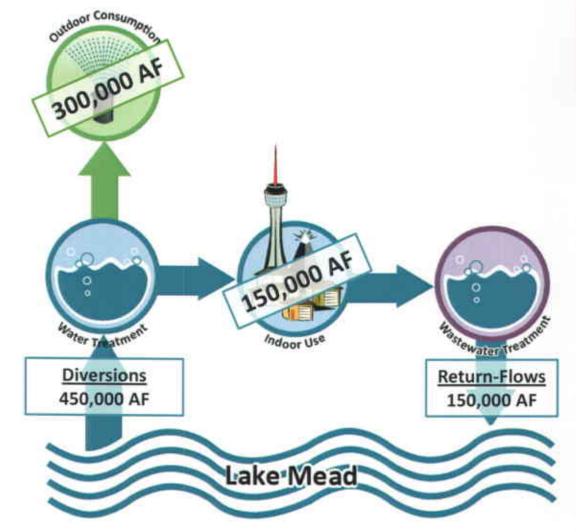
 Assuming a reduction of 50,000 AF indoors and 75,000 AF
 outdoors
- Increased Reuse

 Assuming an increase of 50,000 AF in reuse

Increased Indoor Conservation

(50,000 af reduction)

TOTAL NET USE: 300,000 acre-feet



SCENARIOS

- Baseline
- Increased Indoor Conservation

 Assuming a reduction of 50,000 AF indoors
- Increased Outdoor Conservation
 Assuming a reduction of 75,000 AF outdoors
- Increased Reuse

 Assuming an increase of 50,000 AF in reuse

Increased Outder Conservation (75,000 af reduction)

Diversions
425,000 AF

Lake Mead

TOTAL NET USE: 225,000 acre-feet

SCENARIOS

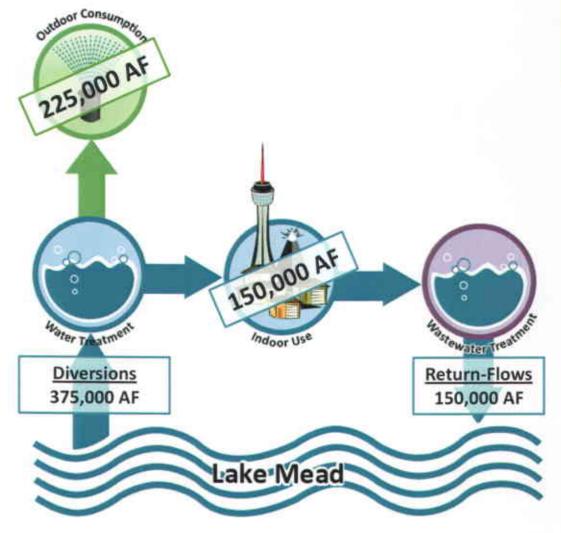
- Baseline
- Increased Indoor Conservation

 Assuming a reduction of 50,000 AF indoors
- Increased Outdoor Conservation

 Assuming a reduction of 75,000 AF outdoors
- Increased Indoor & Outdoor Conservation
 Assuming a reduction of 50,000 AF indoors and 75,000 AF outdoors
- Increased Reuse

 Assuming an increase of 50,000 AF in reuse

TOTAL **NET USE:** 225,000 acre-feet



SCENARIOS

- Baseline
- Increased Indoor Conservation

 Assuming a reduction of 50,000 AF indoors
- Increased Outdoor Conservation

 Assuming a reduction of 75,000 AF outdoors
- Increased Indoor & Outdoor Conservation

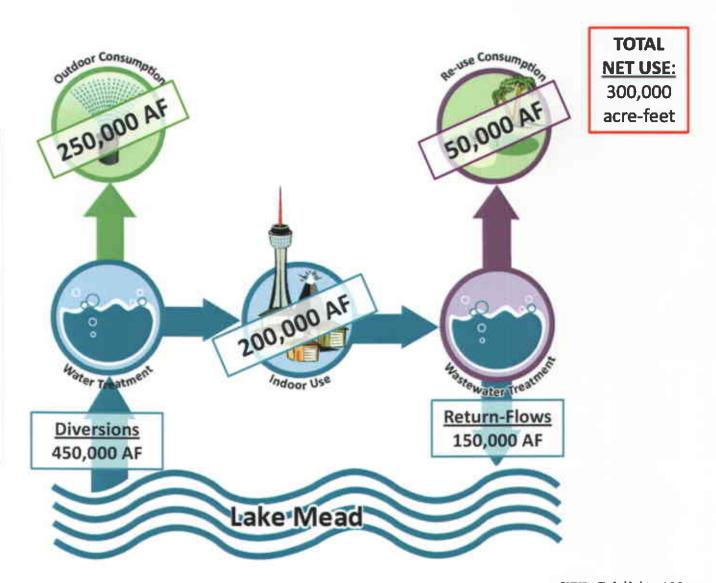
 Assuming a reduction of 50,000 AF indoors and 75,000 AF
 outdoors
- Increased Reuse

 Assuming an increase of 50,000 AF in reuse

with REUSE

Outdoor Consumption Results C

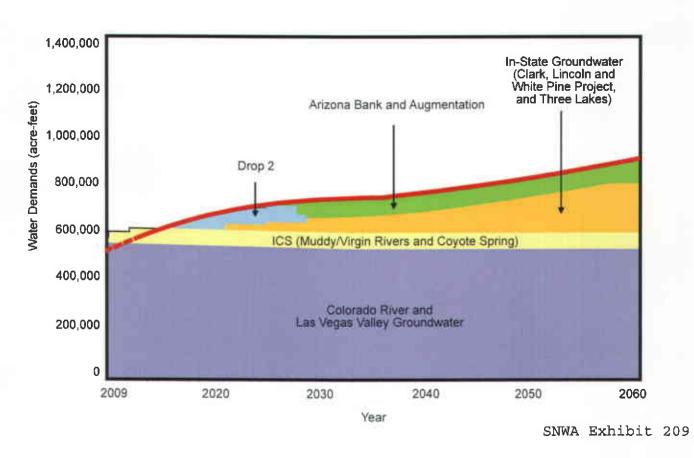
TOTAL RE-USE Consumption Outdoor Consumption **NET USE:** 300,000 275,000 AF 25,000 AF acre-feet 200,000 AF Stewater Treatmen Vater Treatment Indoor Use Return-Flows Diversions 175,000 AF 475,000 AF Lake Mead



	USER	DEMAND (af	v)	Outdoor			Additional Resources Available	
	TOTAL DIVERSIONS	Outdoor	Indoor	as a % of Total Use	Returns to Lake Mead	Consumptive Use		
Scenario: Baseline	500,000	300,000	200,000	60%	200,000	300,000	52	
Scenario 2: Indoor Conservation 0,000 af reduction)	450,000	300,000	150,000	67%	150,000	300,000	NO	
Scenario 3: Outdoor Conservation (75,000 af reduction)	425,000	225,000	200,000	53%	200,000	225,000	Yes 33%	
Scenario 4: Indoor/Outdoor Cons. (125,000 af reduction)	325,000	225,000	150,000	69%	150,000	225,000	Yes 33%	

		USER DEMA	ND (afy)		Outdoor &			Additional Resources Available	
ļĦ	TOTAL DIVERSIONS	Outdoor	Reuse	Indoor	Reuse as a % of Total Use	Returns to Lake Mead	Consumptive Use		
Scenario: Baseline	500,000	300,000		200,000	60%	200,000	300,000	-	
Scenario 2: use – Current perations (25,000 af replacement of Potable Water)	475,000	275,000	25,000	200,000	60%	175,000	300,000	NO	
Scenario 3: Increased Reuse (50,000 af replacement of Potable Water)	450,000	250,000	50,000	200,000	60%	150,000	300,000	NO	

FIGURE 28 - Projected Water Demands and Future Resources (under normal Colorado River conditions)



Clark County Population Estimates and Forecasts

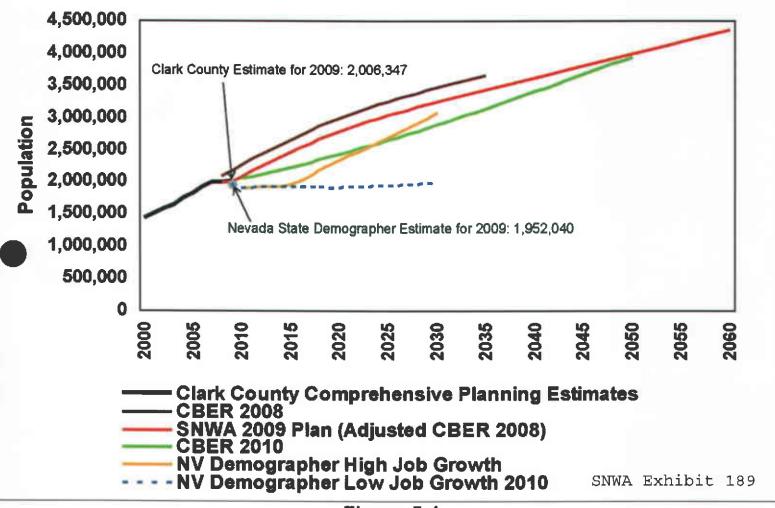
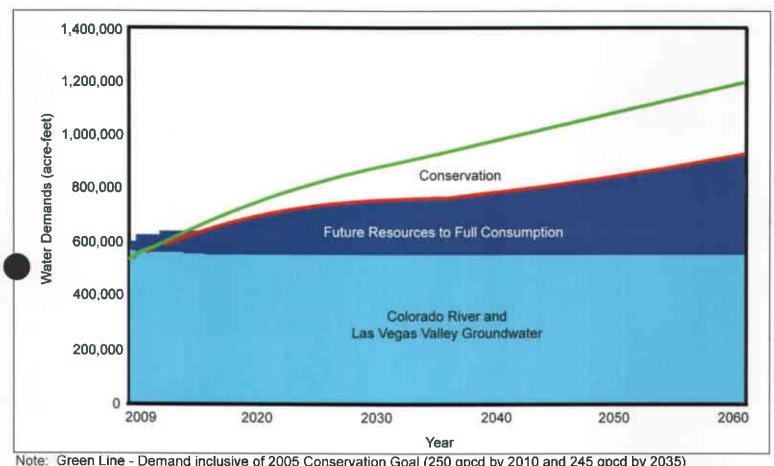


Figure 5-1

Clark County Population Projections (CBER and Nevada State Demographer)



Note: Green Line - Demand inclusive of 2005 Conservation Goal (250 gpcd by 2010 and 245 gpcd by 2035)

Red Line - Demand inclusive of 2009 Conservation Goal (199 gpcd by 2035)

Figure 6-1 SNWA Exhibit 189
Summary of Projected Water Demands and Water Resources

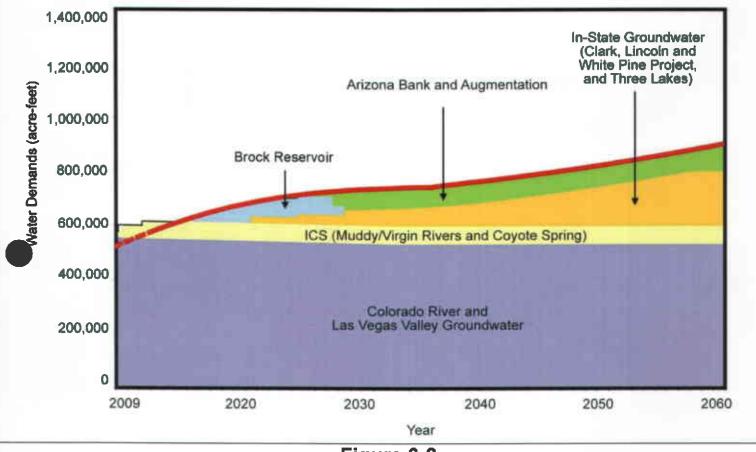


Figure 6-2
Projected Water Demand and Future Resources

(Under Normal Colorado River Conditions)

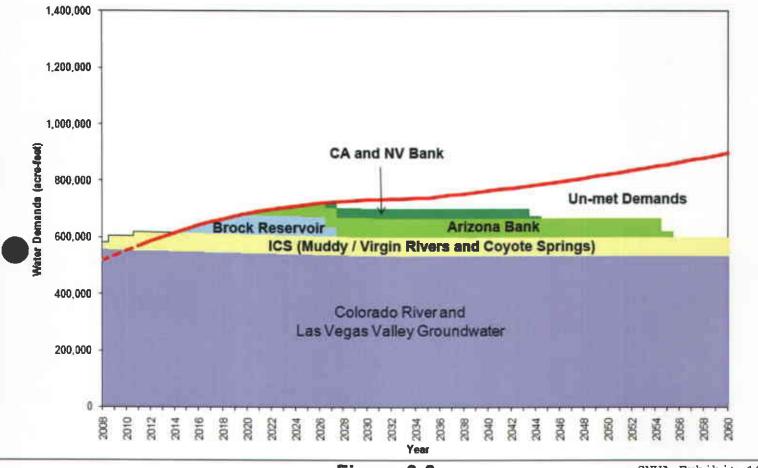


Figure 6-3
SNWA Exhibit 189
2009 Water Resource Plan without In-State Groundwater and Augmentation

Table 6-1 SNWA Projected Water Demand (Diversion Quantities)

Year	SNWA Water Demand (acre-feet)	
2020	684,442	
2030	732,365	
2040	764,681	
2050	822,807	
2060	897,087	

Note: SNWA water demands are based on the 2009 Water Resource Plan (SNWA, 2009a)

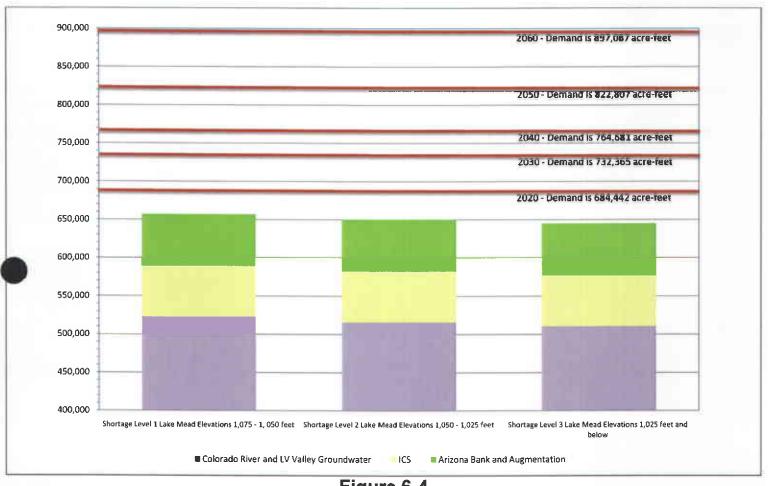
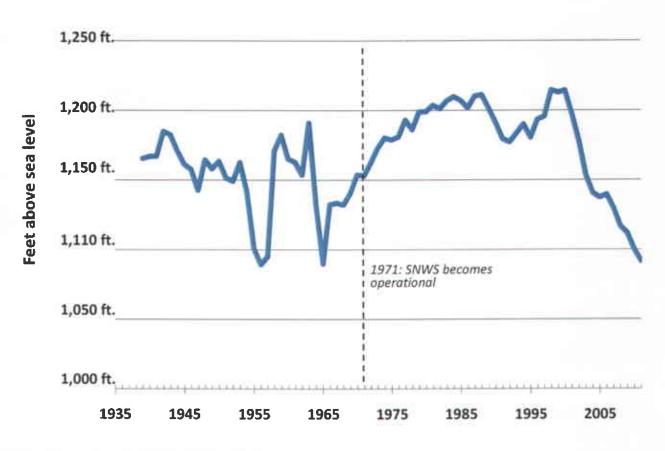


Figure 6-4
Water Resource Deficits at Various Years
(Designated Shortage Colorado River Conditions)

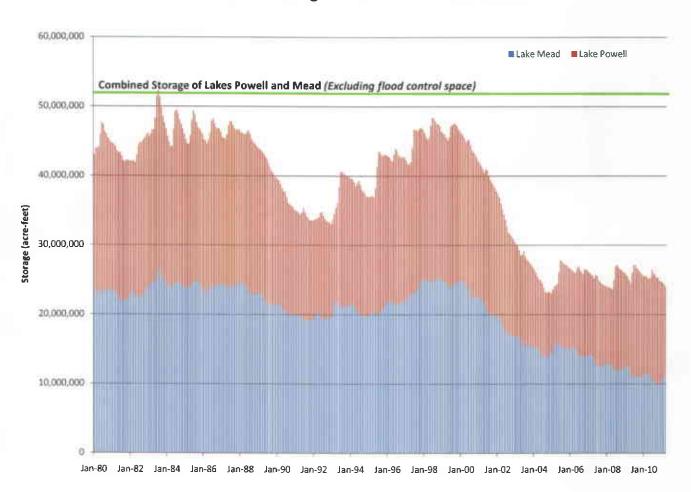
Lake Mead Historic Water Elevations



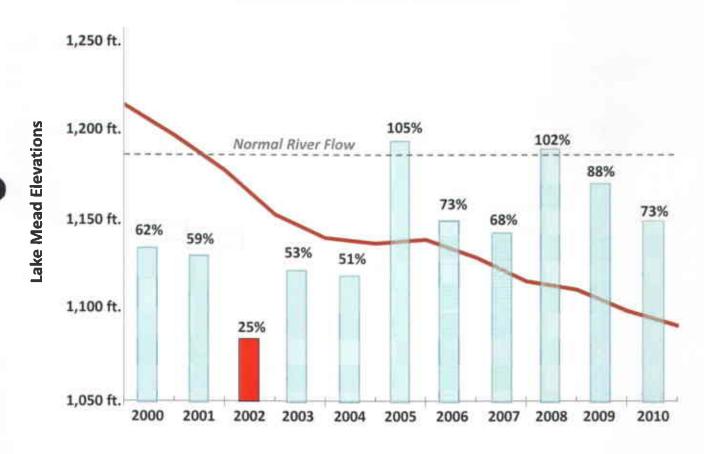
Source: http://www.usbr.gov/lc/region/g4000/hourly/mead-elv.html

^{*}Figure uses January elevations of each year

Combined Storage of Lakes Powell and Mead



Colorado River Annual Inflows and Lake Mead Water Elevations



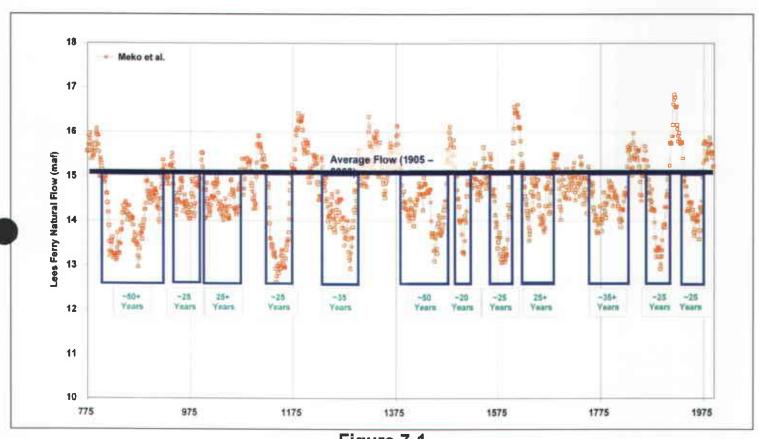


Figure 7-1
Colorado River Stream Flow Reconstruction SNWA Exhibit 189

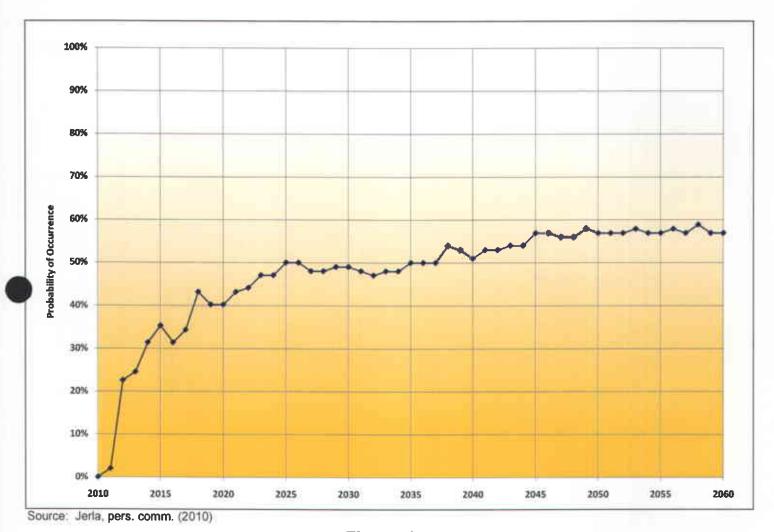


Figure A-2
Probability of Shortage

Table A-1
Frequency and Duration of Shortages

	Average	Minimum	Maximum	Median
Sequences	1.90	1.00	4.00	2.00
Average Duration of Shortage Sequence (years)	15.52	2.67	49.00	11.58

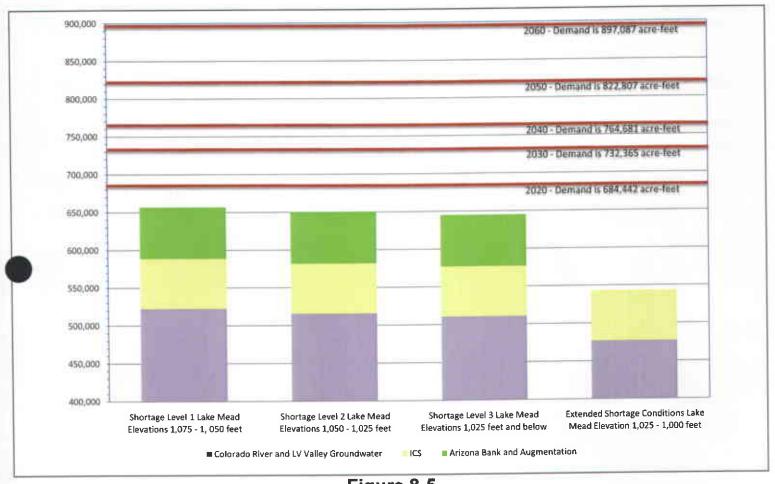


Figure 8-5
Water Resources Deficits at Various Years
(Designated and Extended Shortage)